

**WHAT IS CLAIMED IS:**

- 1 1. A door lock/unlock system for a vehicle, comprising:
  - 2 a door lock state detector detecting whether a door
  - 3 of the vehicle is put in a lock state;
  - 4 a door open state detector detecting whether the
  - 5 door is open;
  - 6 a door lock mechanism through which the door is
  - 7 locked and unlocked; and
  - 8 a controller connected to the door lock state
  - 9 detector, the door open state detector and the door
  - 10 actuator, the controller being arranged,
    - 11 to compare a first lock/unlock state detected
    - 12 during the door open state with a second lock/unlock
    - 13 state detected at a moment when an open/close state
    - 14 is changed from an open state to a closed state,
    - 15 to maintain the state of the door lock
    - 16 mechanism when the first lock/unlock state
    - 17 corresponds to the second lock/unlock state, and
    - 18 to set the state of the door lock mechanism at
    - 19 the first lock/unlock state when the first
    - 20 lock/unlock state does not corresponds to the second
    - 21 lock/unlock state.
- 1 2. The door lock/unlock system as claimed in claim 1,  
2 wherein the controller is further arranged to count a  
3 predetermined time period from a moment that the open/close  
4 state is changed from the open state to the closed state  
5 and to compare the first lock/unlock state and the second  
6 lock/unlock state when the counted time period is smaller  
7 than the predetermined time period.

1 3. The door lock/unlock system as claimed in claim 1,  
2 wherein the door lock mechanism comprises a door lock  
3 actuator which is connected to the controller and through  
4 which the door lock mechanism changes the lock/unlock state  
5 of the door.

1 4. The door lock/unlock system as claimed in claim 1,  
2 wherein the door lock state detector, the door open state  
3 detector and the door lock mechanism are attached to each  
4 of the doors of the vehicle.

1 5. The door lock/unlock system as claimed in claim 1,  
2 wherein the controller is further arranged to  
3 repeatedly store a lock/unlock state detected by the door  
4 lock state detector in a memory of the controller as the  
5 first lock/unlock state when the door is open.

1 6. The door lock/unlock system as claimed in claim 1,  
2 further comprising an overlay switch for setting the  
3 lock/unlock state with a priority to the determination  
4 based on the door lock state detector.

1 7. The door lock/unlock system as claimed in claim 6,  
2 wherein the overlay switch includes a concentrated door  
3 lock/unlock switch through which a driver of the vehicle  
4 concentratedly controls the door lock/unlock state of all  
5 of the doors of the vehicle.

1 8. The door lock/unlock system as claimed in claim 1,  
2 further comprising a door locking knob through which a  
3 vehicle occupant in a passenger compartment of the vehicle  
4 is capable of locking the door.

1 9. A method for controlling a lock/unlock state of a door  
2 of a vehicle, the method comprising:

3 detecting whether the door is put in a lock state;

4 detecting whether the door is open;

5 comparing a first lock/unlock state detected during  
6 the door open state with a second lock/unlock state  
7 detected at a moment when an open/close state is changed  
8 from an open state to a closed state;

9 maintaining the state of a door lock mechanism for  
10 locking and unlocking the door when the first lock/unlock  
11 state corresponds to the second lock/unlock state; and

12 setting the state of the door lock mechanism at the  
13 first lock/unlock state when the first lock/unlock state  
14 does not corresponds to the second lock/unlock state.

1 10. A door lock/unlock system for a vehicle, comprising:

2 lock/unlock operation means for locking and unlock a  
3 door;

4 lock/unlock mechanism interconnected with the  
5 lock/unlock operation means, the lock/unlock mechanism  
6 locking and unlocking the door according to an operation of  
7 the lock/unlock operation means;

8 door open state detecting means for detecting an  
9 open/close state of the door;

10 door lock state detecting means for detecting a  
11 lock/unlock state of the door; and

12 door lock/unlock controlling means for controlling an  
13 operation of the lock/unlock mechanism, the door  
14 lock/unlock controlling means comparing the lock/unlock  
15 state detected during the door open state with the  
16 lock/unlock state detected at a moment that the door open

17 state is changed from an open state to a close state,  
18 maintaining the state of the door actuator when the  
19 lock/unlock state during the door open state corresponds to  
20 the lock/unlock state at the moment that the open/close  
21 state is changed from the open state to the close state,  
22 and setting the lock/unlock state of the door lock  
23 mechanism at the lock/unlock state during the door open  
24 state when the lock/unlock state during the door open state  
25 does not correspond to the lock/unlock state at the moment  
26 that the open/close state is changed from the open state to  
27 the close state.